

AUTOMATIC FREQUENCY CORRECTION APPARATUS
AND METHOD OF OPERATION

ABSTRACT OF THE DISCLOSURE

1 A frequency shift keyed (FSK) receiver for demodulating an
5 incoming transmitted signal comprising: 1) a phase-locked loop
for receiving an oscillator reference signal having a frequency
F1 and generating a reference carrier frequency signal having a
desired frequency $N1(F1)$, wherein N1 may be a non-integer value,
the phase-locked loop comprising: a) a phase detector having a
10 first input for receiving the oscillator reference signal and a
second input; and b) a frequency divider circuit for dividing an
actual frequency of the reference carrier frequency signal by an
adjustable integer value N2 applied to a control input of the
frequency divider circuit to generate a feedback signal applied
15 to the second input of the phase detector. The FSK receiver
further comprises: 2) a frequency discriminator that receives the
incoming transmitted signal and the reference carrier frequency
signal and generates a correction signal corresponding to a
difference between a center frequency of the incoming transmitted
20 signal and the actual frequency of the reference carrier
frequency signal; and 3) a delta-sigma modulator controlled by
the correction signal operable to generate a sequence of integers
having an average value of N2 over a defined time period, wherein
the sequence of integers are applied to the control input of the
25 frequency divider circuit.